

Patent Appn.: 10/707,607 February 2006 Claims amendment Inventor: Joseph Franklin Frasca  
Examiner: Stephen Johnson Art Unit 3641

## **CLAIMS AMENDMENT**

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- 2     **What is claimed is:**

3     **[Claim 1](Cancelled)**

4     **[Claim 2] (Cancelled)**

5     **[Claim 3] (Cancelled)**

6     **[Claim 4] (Cancelled)**

7     **[Claim 5] (Cancelled)**

8     **[Claim 6](New) Electromagnetic propulsion devices comprising:**

9         **a barrel; and**

10      **a barrel cavity in said barrel which extends the length of the barrel and that has:**

11          **a breech end opening at one barrel end, and**

12          **a muzzle end opening at the second barrel end, and**

13          **throughout said cavity's length a uniform right cross section to said cavity's central axis; and**

14      **armatures, that are:**

15          **in or for insertion into the breech end of said barrel cavity, and**

16          **for propulsion through the barrel cavity towards and out of the cavity's muzzle end,**

17          **and**

18      **each said armature has a central axis that, when in the barrel cavity, is close and parallel or**

19          **coincident with the barrel cavity's central axis, and**

20      **each said armature has:**

21          **all right sections taken said armature's central axis smaller then said barrel cavity's uniform**

22          **right section, and**

23          **a portion of said armature's right sections similar to said cavity's uniform right section in**

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24                   **shape and slightly undersized thereof to permit unobstructed traverse of the barrel**  
25                   **cavity by said armature; and**  
26    **two barrel rails which are:**  
27                   **power rails located in the walls of the barrel cavity, and**  
28                   **oriented parallel the cavity central axis, and**  
29                   **located across the barrel cavity from each other, and**  
30                   **each said power rail has:**  
31                   **a connection means at said rail's breech end for attachment of outside circuitry to an**  
32                   **outside power source, and**  
33                   **a continuous surface said rails length that is part of the barrel cavity surface and**  
34                   **said surface extends the length of the barrel cavity through which an**  
35                   **armature uses said power rail for propulsion in the device; and**  
36                   **said barrel power rails divide the barrel cavity wall into two segments whose barrel**  
37                   **cavity surface boundaries are:**  
38                   **said muzzle end and said breech end of the barrel cavity, and**  
39                   **said barrel cavity surfaces of said barrel power rails and**  
40                   **cavity axis parallel rays therefrom to said cavity's breech**  
41                   **end and muzzle end; and**  
42    **a wall conductor assembly comprised of:**  
43                   **a barrel bus which is located in one of said barrel cavity wall segments and**  
44                   **therein oriented parallel, adjacent, and in close proximity one of said power**  
45                   **rails and electrically insulated from said power rail, and**  
46                   **a plurality of equal length parallel wall conductors in the barrel cavity wall segment**

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47                   **with said barrel bus and**  
48                   **said wall conductors are spaced from each other along the length of said barrel**  
49                   **bus and**  
50                   **each wall conductor of said plurality of wall conductors is:**  
51                   **at or very near the barrel cavity surface of said cavity wall segment, and**  
52                   **physically and electrically continuous with and perpendicular to said barrel**  
53                   **bus, and**  
54                   **each said wall conductor:**  
55                   **extends from the barrel bus to close proximity without contact with the**  
56                   **barrel power rail distal said barrel bus whereat said wall conductor**  
57                   **has and is electrically continuous with, an electrical contact means**  
58                   **located at the barrel cavity through an opening into said cavity, and**  
59                   **beyond the barrel bus is electrically insulated from said wall**  
60                   **conductor's surroundings except at said electrical contact means; and**  
61                   **each of said armature is further comprised of:**  
62                   **a propulsion bus that, with the armature in the barrel cavity, is oriented therein:**  
63                   **to travel in close proximity to the wall conductors of said wall conductor**  
64                   **assembly and to carry electric current in a direction that is:**  
65                   **perpendicular to said cavity axis, and**  
66                   **perpendicular to the direction of barrel cavity traverse by said**  
67                   **armature, and**  
68                   **parallel to the orientation of said wall conductors of said wall**  
69                   **conductor assembly, and**

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70       **said propulsion bus of an armature in the barrel cavity extends**  
71           **from proximal the barrel power rail distal said barrel bus, whereat it has**  
72           **electrical continuity with propulsion bus-aft shunt circuit means, and**  
73           **therefrom to the cavity surface of the barrel power rail proximal said barrel**  
74           **bus whereat said propulsion bus has surface that has continuous**  
75           **electrical continuity with said power rail's cavity surface and said**  
76           **continuous electrical continuity is continuous sliding electrical**  
77           **continuity with armature movement in the barrel cavity, and**  
78        **said propulsion bus of an armature in the barrel cavity,**  
79           **with exception of above said electrical continuity with said propulsion**  
80           **bus-aft shunt circuit means and said electrical continuity with the**  
81           **barrel power rail proximal said barrel bus,**  
82           **is electrically insulated from direct electrical continuity with all other**  
83           **conducting elements of the barrel and armature, and**  
84        **said propulsion bus of an armature in the barrel cavity:**  
85           **provides continuous electrical continuity between said barrel power**  
86           **rail proximal said barrel bus and said propulsion bus-aft shunt circuit**  
87           **means and,**  
88           **with power supplied to said power rails,**  
89           **provides a current path between said power rail proximal said barrel**  
90           **bus and said propulsion bus-aft shunt circuit means; and**  
91           **a forward current shunt that, with the armature in the barrel cavity, is located**  
92           **forward said armature's propulsion bus in the direction of cavity**

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93                   **traverse by said armature and**  
94                   **proximal the barrel power rail that is located distal said barrel bus of**  
95                   **said wall conductor assembly, and**  
96                   **said forward current shunt has surface in the armature surface proximal the barrel**  
97                   **cavity wall with said wall conductor assembly and**  
98                   **said surface has continuous electrical continuity with said contact means of said wall**  
99                   **conductors at the instant barrel cavity location of said surface of said**  
100                  **forward current shunt and said continuous electrical continuity is continuous**  
101                  **sliding electrical continuity with armature movement in the barrel cavity,**  
102                  **and**  
103                  **said forward current shunt also has surface which, with the armature in the barrel**  
104                  **cavity, has continuous electrical continuity with the cavity surface of said**  
105                  **proximal power rail and said continuous electrical continuity is continuous**  
106                  **sliding electrical continuity with armature moment in the barrel cavity; and**  
107                  **said wall conductor assembly has additionally, with an armature in said barrel cavity,**  
108                  **forward wall conductors comprised of:**  
109                  **the group of one or more consecutive wall conductors of said wall conductor**  
110                  **assembly whose contact means at any instant have said electrical continuity**  
111                  **with said forward current shunt surface; and**  
112                  **said forward current shunt, of an armature in the barrel cavity, provides,**  
113                  **via said shunt's surface with continuous electrical continuity with said**  
114                  **proximal power rail and said shunt's surface with continuous**  
115                  **electrical continuity with said forward wall conductors,**

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116           **continuous electrical continuity between said power rail and said forward**  
117           **wall conductor of said wall conductor assembly, and,**  
118           **provides, with power supplied to said power rails,**  
119           **a current path between said proximal power rail and said forward**  
120           **wall conductors of said wall conductor assembly and**  
121           **said forward current shunt of said armature in said barrel cavity,**  
122           **except for said continuous electrical continuity with said forward wall**  
123           **conductors and said continuous electrical continuity with said**  
124           **proximal power rail,**  
125           **is electrically insulated from direct electrical continuity with the rest of the**  
126           **armature and barrel; and**  
127           **an aft current shunt that, with the armature in the barrel cavity, is located**  
128           **aft said armature's propulsion bus in the direction of cavity traverse by said**  
129           **armature and**  
130           **proximal the barrel power rail that is located distal said barrel bus of said**  
131           **wall conductor assembly, and**  
132           **said aft current shunt has surface in the armature surface proximal the barrel**  
133           **cavity wall with said wall conductor assembly and**  
134           **said aft shunt surface has continuous electrical continuity with said contact means**  
135           **of said wall conductors at the instant barrel cavity location of said aft current**  
136           **shunt surface and said continuous electrical continuity is continuous sliding**  
137           **electrical continuity with armature movement in the barrel cavity; and**  
138           **said wall conductor assembly has additionally, with an armature in said barrel cavity,**

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139        **aft wall conductors comprised of:**  
140              **the group of one or more consecutive wall conductors of said wall conductor**  
141              **assembly whose contact means at any instant have said electrical**  
142              **continuity with said aft current shunt surface; and**  
143              **said aft current shunt, of an armature in said barrel cavity provides,**  
144              **via said continuous electrical continuity with the propulsion bus-aft**  
145              **shunt circuit means and said continuous electrical continuity with**  
146              **said aft wall conductors,**  
147              **continuous electrical continuity between said propulsion bus-aft shunt circuit**  
148              **means and said aft wall conductors of said wall conductor assembly,**  
149              **and, with power supplied to said power rails, provides**  
150              **a current path between said propulsion bus-aft shunt circuit means and said**  
151              **aft wall conductors of said wall conductor assembly, and**  
152              **said aft current shunt of an armature in said barrel cavity,**  
153              **except for said continuous electrical continuity with said aft wall**  
154              **conductors and said continuous electrical continuity with said**  
155              **propulsion bus-aft shunt circuit means,**  
156              **is electrically insulated from direct electrical continuity with the rest of the**  
157              **armature and barrel; and**  
158              **said barrel bus of said wall conductor assembly, with an armature in the barrel**  
159              **cavity, provides continuous electrical continuity between said forward**  
160              **wall conductors and said aft wall conductors of said wall conductor**  
161              **assembly and with power supplied to the power rails and an armature**

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162                   **in the barrel cavity, said barrel bus provides a current path between**  
163                   **said forward wall conductors and said aft wall conductors; and**  
164                   **in which with**  
165                   **an outside power source attached to the connection means of the two power rails**  
166                   **and an armature of the claimed device in or inserted into the breech end of said**  
167                   **barrel cavity where said power rails and said wall conductor assembly are extant,**  
168                   **the electric current path in the device effecting electromagnetic propulsion of the**  
169                   **armature in the barrel cavity toward the muzzle is extant and remains so while the**  
170                   **armature is completely in the barrel cavity where said rails and said wall conductor**  
171                   **assembly are extant; and**  
172                   **the magnetic fields of the electric currents in:**  
173                   **said barrel power rails and**  
174                   **said forward wall conductors, and**  
175                   **said aft wall conductors and**  
176                   **said barrel bus of said wall conductor assembly,**  
177                   **interact with the electric current in said propulsion bus of said armature creating**  
178                   **the forces therein with barrel cavity axis parallel, barrel muzzle directed**  
179                   **components which propel said armature in the barrel cavity towards the**  
180                   **barrel muzzle.**  
181  
1       **[Claim 7] (New) Electromagnetic propulsion devices as claimed in claim 6 wherein, with an**  
2       **armature in the barrel cavity, the propulsion bus-aft shunt circuit means is comprised of:**  
3       **an additional barrel rail which is:**

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4                   **located parallel, adjacent, and in close proximity to said barrel power rail**  
5                   **distal said barrel bus, and electrically insulated therefrom, and**  
6                   **along the length of said additional barrel rail there is continuous barrel cavity**  
7                   **surface; and**  
8                   **additional surface on said aft current shunt and said additional surface on said aft current**  
9                   **shunt has continuous electrical continuity with said barrel cavity surface of said**  
10                  **additional barrel rail and said continuous electrical continuity is continuous sliding**  
11                  **electrical continuity with armature movement in the barrel cavity; and**  
12                  **additional surface on the propulsion bus and said additional surface is proximal said**  
13                  **additional barrel rail and said surface has continuous electric continuity with the**  
14                  **cavity surface of said additional barrel rail and said continuous electrical continuity**  
15                  **is continuous sliding electrical continuity with armature movement in the barrel**  
16                  **cavity.**

17

1        **[Claim 8] (New) Electromagnetic propulsion devices as claimed in claim 6 wherein the**  
2        **propulsion bus-aft shunt circuit means is comprised:**  
3        **an electric current bus in the armature between and connecting the armature aft current**  
4        **shunt and the armature propulsion bus.**

5

1        **[Claim 9] (New) Electromagnetic propulsion devices as claimed in claim 6 wherein:**  
2        **said barrel cavity has a twist so that consecutive barrel cavity right sections,**  
3        **when taken at incremental increasing muzzle directed distances from a point at the**  
4        **breech on the cavity axis, have like shape and area but have incremental increasing**

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5       **angular displacement about the cavity axis from the initial point and said right**  
6       **cavity section angular displacement per unit axial distance is constant and the**  
7       **barrel cavity thereby imparts a rotation about said axis to an armature of the device**  
8       **traversing said cavity; and**  
9       **said armatures have structure and surfaces**  
10      **with the same twist about the armature axis as the barrel cavity twist in angle**  
11      **displacement per unit axial distance so as to permit proper function of said**  
12      **armature while rotating about said armature's axis while moving in the barrel**  
13      **cavity and during unobstructed traverse of the barrel cavity by said armature while**  
14      **rotating about said axis; and**  
15      **said wall conductors of said wall conductor assembly of said barrel with said twist are not**  
16      **perpendicular to said barrel bus of said assembly; however said wall conductors**  
17      **remain orthogonal the barrel cavity axis.**

1

2       **[Claim 10](New)**

3       **Electromagnetic propulsion devices as claimed in claim 6 wherein an armature is mounted**  
4       **in the barrel proximal the barrel's breech end for release and propulsion in the barrel**  
5       **cavity on application of sufficient power to the power rails.**

6

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**Monday, February 13, 2006**

**Closing Comments:**

**Dear Examiner:**

**In response to the office letter of 11/22/2005, the original 5 claims relevant the elected species of patent application 10/707,607 have been cancelled and replaced by the forgoing 5 new claims # 6-10.**

**As pointed out in the office letter of 11/22/2005, the expression “similar... length” and “similar....location” make the claim indefinite. These expressions are not included in new claim 6 or new claim 7. Discussion of variation in the length of the power rails etc. can be found in the original specifications paragraphs 100-104.**

**The portion of claim 1 including “and the armature direction of traverse...” has been restated with armature changed to “armature’s” and the sentence restructured in new claim 6. See lines 62-69.**

**Aft wall conductors are defined in lines 138-142 of claim 6 as are forward wall conductors, lines 107-111.**

**The new claims 6-10 have appropriate introductory clauses.**

**In claim 7 (former claim 2) the surfaces on the aft current shunt and propulsion bus are now indicated as additional surfaces to differentiate from the surfaces used in the propulsion bus-aft shunt means from those surfaces of the aft current shunt and propulsion bus previously indicated in claim 6.**

**In claim 9 (former claim 4), lines 15 through 17, the clause noting the change in characteristics of the wall conductor assembly required in the barrel with a twist, might**

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**be removed if lines 51-53 of claim 6 where modified to "... , and physically and electrically continuous with said barrel bus and orthogonal said barrel cavity axis, and ..." . A change I would make by additional amendment if permitted.**

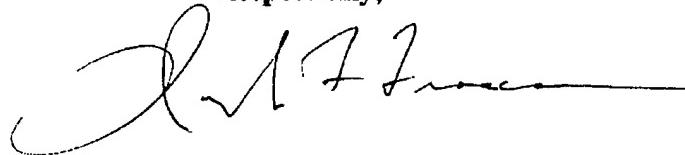
**These claims do not use the word "its".**

**I hope you find the claims in this amendment acceptable.**

**On other matters, should I prepare a substitute specification and additional drawings, to make the application properly complete? Please advise.**

**Thank you for your attention.**

**Respectfully,**



**Joseph F. Frasca**

**Inventor**